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FEBRUARY 25, 1924 Issued Weekly PRICE 10 CENTS

Walter E. Lees taking delivery of his Lincoln-Standard semi-cabin plane (Wright E2 engine)

VOLUME XVI

NUMBER 8

SPECIAL FEATURES

DOUGLAS WORLD CRUISER DESCRIBED

SHAKE UP OF PERSONNEL AT LAKEHURST

NAVAL ARCTIC AIR EXPEDITION POSTPONED

PROGRESS TOWARD 1000 HP. AIRCRAFT ENGINES

THE GARDNER, MOFFAT CO., INC.
HIGHLAND, N. Y.
225 FOURTH AVENUE, NEW YORK

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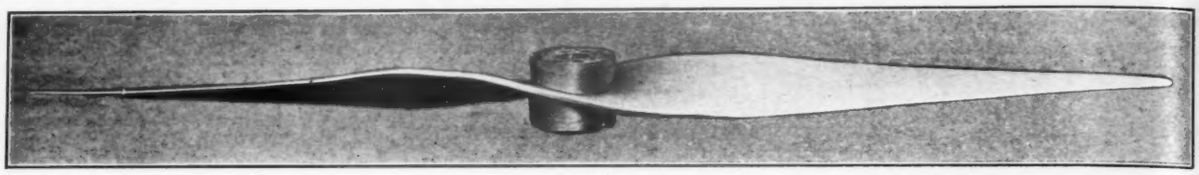
CURTISS-REED ONE-PIECE DURALUMIN PROPELLER



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FEBRUARY 25, 1924

AVIATION

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Published every Monday

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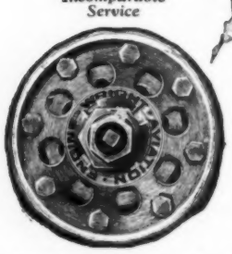

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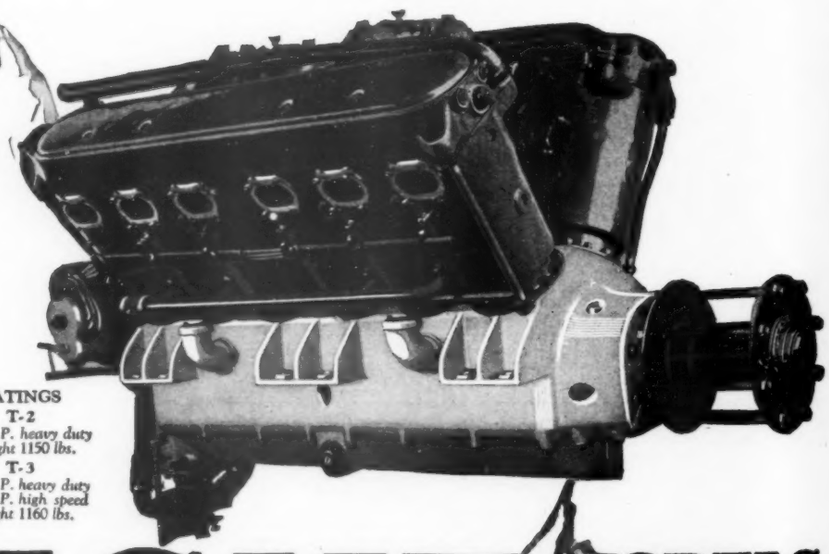

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Foreign Racing Entries

LETTERS from Europe indicate new complications regarding entries for the races that are to be held in this country this year. The fact that our Air Services have stood sponsors for these races, whereas in Europe the constructors bear the expense, brings up the question of the possibility of civilians competing with a government without undue expense. The second question being discussed is the propriety of foreign entries having their expenses paid by the N.A.A. to come over and compete with our own Army and Navy Air Services.

Taking up the first point, the sponsoring of racing by our government, there is excellent precedent for this in the Cavalry, where officers have always been identified with all efforts to improve the breeding of the horse. While it is true that the government has not engaged in horse racing, it has fostered the spirit of contest by encouraging officers to enter the horse shows. In aviation it is somewhat different The Services have wanted speed and more speed, and the races of the last two years have brought the results desired. But when it comes to international air races a new problem is encountered. Racing between governments would probably establish a precedent that might lead to far-reaching complications. The Schneider Cup situation is a case in point. Our Naval Air Service financed the sending of seaplanes and pilots to England, and they were successful in lifting the Cup. Now the private foreign constructor is invited to finance a visit here to compete with our government services. We also hear that government entries for the Beaumont Cup were not acceptable and that only the entries of constructors would be considered.

The other difficulty comes as a result of the generous offer of St. Louis last year to underwrite the expenses of foreign contestants. The English attitude is well expressed by one of our English correspondents. "Our people took the attitude, and I think justifiably, that if they could not afford to race on their own they were not going to race at anybody else's expense. To be quite frank, one of our leading constructors said that it did not seem right to send a machine over to the States at the expense of America and to give the Americans the chance of saying after it was beaten that we could not even put up a show when somebody else paid for it." All of which sounds reasonable.

In France, on the other hand, the constructors are interested in the possible renewing of the offer of St. Louis, by Dayton, this year. They appear to be anxious to race for racing sake regardless of the technicalities. If the American constructors were left to defend the many records that we now hold, without government support, they would undoubtedly be as reluctant to expend the large amount required to build and enter racing aircraft as European designers.

These two points could receive the attention of the F.A.I. at this time with the excellent effect of clearing up the international racing situation for all time. Our feeling is that government air services should not be permitted to compete with private constructors and that records made by government aircraft should be homologated separately.

The matter of furnishing expenses is easily solved and should offer no great difficulties. The fact that the St. Louis Races attracted a crowd that paid approximately $150,000 would seem to justify the payment of expenses of contestants. But here again, the entry of governments in races that have a financial side complicates the decision. It will require a careful and complete investigation of all the viewpoints to reach a clear solution, but it is one that should be given consideration by the international organization in charge of the sport of flying throughout the world.

The Shenandoah

THE action of President Coolidge in putting the responsibility for the North Pole Flight of the Shenandoah up to Congress is in line with his usual clear thinking. Congress is as jealous of its prerogatives as is the Executive branch of the Government. This was shown when the Air Mail appropriation was thrown out of the Appropriation Bill on a point of order, the Congressman claiming that there was no authorization in law for the Air Mail.

Having greater regard for the opinions of technical experts than for those who have only seen in the North Pole venture a scientific expedition of value, or those who have been enjoying the great publicity the whole enterprise has attracted, we have had to take a reticent view of the trip. When engineers differ over the air worthiness of a craft for long trips in which the lives of our officers are risked, no consideration seems to us as important as that of obtaining a unanimity of opinion. The lift of the Shenandoah when filled with helium, is not great enough, we believe it will be found, to give an adequate reserve cruising range. As has been pointed out, the use of helium decreases the emergency cruising range of the airship approximately one half, a most serious factor when exploring unknown regions with a single base. The excessive eagerness of the French Navy to use the Dixmude for long distance trips without available landing places in case of emergencies, led to the recent disaster. If the warnings of her commanding officer had been heeded, the Dixmude would probably still be a part of the French Navy instead of lying on the bottom of the sea.

Should Congress decide to go ahead with the projected Arctic air expedition, we urge that competent technical men be called upon to give expert testimony on the project, untrammelled by any considerations of expediency.

Progress Toward 1000 Hp. Aircraft Engines

By GLENN D. ANGLE

In Charge of Airplane Engine Design, Engineering Division, Air Service

The effectiveness of any military airplane used for bombing operations can be measured by its useful load. Besides the crew and its equipment, useful loading consists of bombs and fuel in proportions determined by the radius and nature of these operations. The amount of useful load, at any given air speed, depends upon the available horsepower in excess of that necessary to lift the airplane itself, hence the term effectiveness can be reduced to available horsepower, and we can at once understand the military necessity of increasing the power output. Incidentally, bombing airplanes, with a few simple alterations, can be converted into passenger and freight carrying ships, therefore the development of high-powered airplanes is also important in our progress toward commercial air travel.

Advantages of Single Engine

In the choice of power plants, the single engine is known to have certain advantages over multi-engined installations delivering approximately the same horsepower. Perhaps the most important of these is the reduction of parasite resistance. The large engine, when installed as a tractor, requires little or no increase in the usual dimensions required for the airplane fuselage, while the nacelles containing the engines of an inter-plane installation add directly to the resistance of forward motion.

Separate controls are required to each engine, therefore the duties of the pilot become more difficult as we increase the number of engines to be used. Remote controls to engines installed in the wings are not always simple to adjust nor to maintain in satisfactory operating condition. Moreover duplication of parts naturally effects a weight increase, not to mention the increased weight of the structure necessary to install the engines in these remote positions. It is perhaps safe to state that no multi-engined installation can be built as light as one with a single engine—assuming, of course, that the same power is being delivered—and furthermore that a single large engine unit can be designed heavier per unit of power output, with a view of greatly increasing its reliability, so that the airplane with this engine installed need weigh no more than one with two or more exceptionally light power plants.

The differences in opinion on the single versus multi-engine installation have been based almost entirely on the question of reliability. Attention has just been directed to the fact that the large engine can be made more reliable without effecting an increase of total weight. Furthermore, it has been proven by test that a bi-motored airplane cannot fly satisfactorily with only one engine functioning. We must conclude, therefore, that we have no greater reliability, on the supposition of engine failure, unless three or more equally reliable engines are employed.

Who Built the Biggest Engine

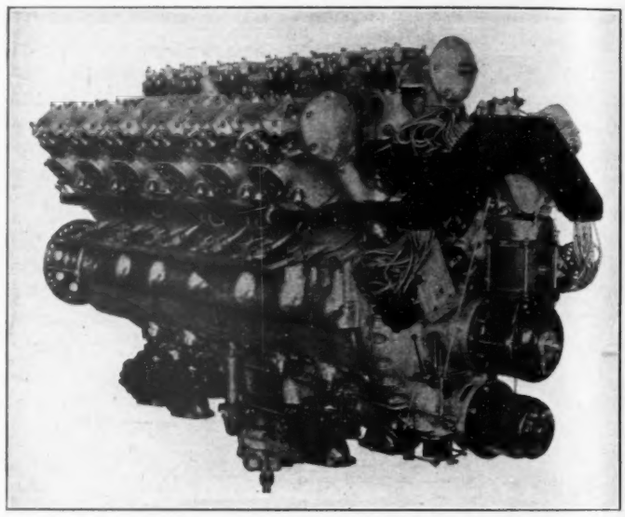
Apparently the development of large power units for both military and commercial aircraft is justified and the question now arises as to what has been done along this line by the U. S. Army Air Service. Numerous reports have come from abroad regarding the European development of large bombing engines, whereas very little information has been circulated concerning similar developments at home. As a matter of fact, our Air Service has been actively engaged in the design and development of large bombing engines ever since the year following the signing of the Armistice. That results have been obtained, in keeping with the efforts expended, can best be judged by the reader from the following brief comments on the various engines of 600 or more horsepower that have been designed and constructed to date.

Records show that so far only thirteen airplane engines, rated not less than 600 hp., have actually been designed and built. Seven are of French design, three are British, two are American, and one is Italian. As far as can be determined from the information available, only six of these engines have received any degree of development. Three engines are of British design, and the other three were produced in France, Italy, and the U. S. A.

In the late war, the Germans were unfortunately situated so that they could conduct bombing raids on non-combatants with their Zeppelins and airplanes by comparatively short flights. On the other hand, the Allies, in order to be able to retaliate for these barbarous acts, had to fly much greater distances before reaching German territory. This situation was keenly felt, and the necessity for the development of larger engines was perfectly obvious.

The Rolls-Royce Condor

Messrs. Rolls-Royce, who are well-known British automobile and airplane engine manufacturers, were perhaps the first in England to be assigned the task of designing and building a bombing airplane engine. The results of their efforts, the



Model W1A 700 hp. aircraft engine, designed and built by the Engineering Division, Air Service

"Condor," would no doubt have been ordered produced in quantities had it not been for the termination of hostilities. This engine is a twelve-cylinder Vee type of approximately 2138 cu. in. piston displacement. The propeller is driven through reduction gears, and the dry weight is reported to be 1336 lb. This engine was originally rated 600 hp. at its normal speed, but the latest reports show that 650 hp. can be normally developed at 1900 r.p.m. At the latter rating, a creditable figure of 2.06 lb./hp. is obtained. Continued development on this engine has finally brought it to a point of refinement equal possibly to any other of its particular class in Europe.

An Early Pioneer: Fiat

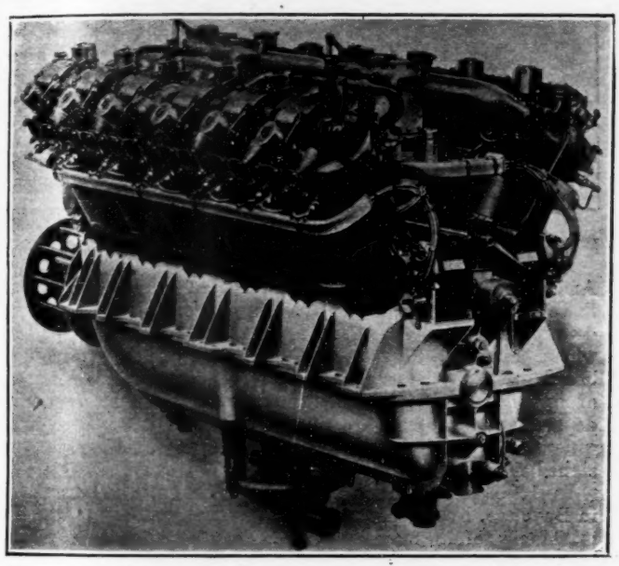
Previous to the completion of the first Rolls-Royce "Condor," in fact about June 1917, the Fiat A14 engine made its appearance in Italy. This engine was also a twelve-cylinder Vee type but had provision for mounting the propeller directly upon the crank-shaft instead of driving at a reduced speed through gears. It was larger than the "Condor," having a piston displacement of 3488 cu. in., and was reported to weigh 1740 lb. The type A14 engine is normally rated 650 hp. at 1550 r.p.m., or 2.68 lb./hp., but is reported to actually deliver better than 700 hp. at its normal speed. Although this engine is rather bulky and heavy for the power delivered, and may

not be inherently well suited for the requirements, nevertheless it is the greatest contribution from Italy in the big engine class and has the distinction of being the first engine of its size ever flown. Doubtless, more hours have been flown with A14 engine than any other of over 600 hp.

Numerous Big Engines in France

The largest program of bombing engine development was conducted in France. Altogether six types were represented. The Renault and Peugeot establishments confined their efforts to the twelve-cylinder Vee forms with direct driven propellers. Both engines were expected to deliver 600 hp., although the former was normally rated at 500 hp. The Renault had 3359 cu. in. piston displacement and was reported to deliver 600 hp. at 1650 r.p.m. This engine weighed 1168 lb., or 2.33 lb./hp. at normal rating, and 1.95 lb./hp. at the greater output. The piston displacement of the Peugeot L41 engine was 2502 cu. in., and its normal speed 1600 r.p.m. The reported weight—1270 lb.—gives a value of 2.11 lb./hp. Very little is known of the merits and serviceability of either of these engines.

An experimental eight-cylinder Vee type of 2612 cu. in. piston displacement was built by LeMaitre and Gerard. This engine was rated 700 hp. at 1600 r.p.m., and was reported to weigh 1260 lb., or 1.8 lb. per rated hp. Claims for this power output were based, no doubt, upon the improved performance



Fiat A14 650 hp. engine, produced in 1917, which was the pioneer of the high powered aircraft engines

expected with the special means provided for cooling the exhaust valve. There are reasons for doubting the success of this scheme, these being further substantiated by the fact that no reports have been received recently regarding further developments.

The pioneer radial-engine builder, Anzani, designed and constructed a twenty-cylinder water-cooled radial engine of 2818 cu. in. piston displacement, rated at 600 hp. This engine was said to develop 650 hp. at 1700 r.p.m., and 700 hp. at maximum speed. The objection common to all radial engines applies to this design; namely, head resistance in too great proportion to the power delivered. No information is at present available with reference to the further development of this engine.

The 1000 hp. Lorraine-Dietrich

The Panhard-Levassor Automobile Works of Paris have constructed a sixteen-cylinder engine of the double Vee type, which is composed of four rows of four cylinders each, with an included angle of forty-five degrees between adjacent rows. This engine has a piston displacement of 2740 cu. in., and is reported to develop 650 hp. at 1600 r.p.m., and 700 hp. at 1700 r.p.m. It is said to weigh 1433 lb., or 2.05 lb. per maximum hp. Considerable trouble was experienced during the short preliminary tests of this engine and it is possible that the project has been abandoned.

The largest engine ever designed in France is the Lorraine-Dietrich twenty-four cylinder W type composed of three rows of eight cylinders, with the two outer rows set at sixty degrees to the center vertical row of cylinders. The piston displacement is 3649 cu. in., and the output is estimated 1000 hp. at 1600 r.p.m. The weight is optimistically estimated at 1870 lb., or 1.87 lb./hp. The work on the design of this engine was undertaken prior to the Armistice, but it is doubtful if the engine was ever constructed or tested. A wooden model was exhibited at the International Exhibition in Paris during December, 1919, it being in reality a double form of their twelve-cylinder W type rated at 500 hp. In the light of existing knowledge on the requirements of bombing engines, this design does not appear to combine the best characteristics.

The Farman eighteen-cylinder W type engine of 600 hp. is evidently the only one of the large French designs that is at present receiving much attention. This engine is extremely heavy—according to reports it weighs 2080 lb., or 3.46 lb./hp. —and for this reason alone the extent of its usefulness is rather limited. It is interesting, however, to note that, out of seven designs, the one showing the largest weight per horsepower should survive. The Farman engine was designed after the war and, as a result, no doubt, incorporates later ideas and more closely meets the requirements in engines of this class. It is provided with a reducing gear for the propeller which can be supplied in any one of four ratios as desired.

The Napier Cub

Since the war, two other British firms have designed and built engines of large output. The Sunbeam company has a twelve-cylinder Vee type engine known as the "Sikh." This engine has a piston displacement of 4033 cu. in., being the largest of any on record. It is rated 850 hp. at 1400 r.p.m., and has a reduction gear giving a normal speed of 920 r.p.m. to the propeller. The weight is reported to be 1952 lb., or 2.3. lb./hp. This engine is intended for lighter-than-air craft and consequently cannot be directly compared with some of the other engines described.

Perhaps the greatest contribution to large engine development in England is the "Cub," which was designed and built by D. Napier and Son, Ltd. This engine is a sixteen cylinder X type employing reduction gears for driving the propeller. The four rows, each of four cylinders, are arranged in the form of an irregular cross, the angle between the two upper rows being less than the angle between the two lower ones. The piston displacement is 3681 cu. in., and the rated brake horsepower 1000 at 1800 r.p.m. The weight has been reported to be 2240 lb., or 2.24 lb. per rated hp. Six of these engines were ordered by the British Air Ministry, but it is understood that so far a 50-hr. endurance test has not been completed owing to certain weaknesses which have developed. Some preliminary test runs have been made showing that the power output is nearly the amount expected, and one of these engines has been installed in an Aldershot bombing plane. It is impossible to predict the future for the "Cub" engine until after a number of trial flights and the completion of its endurance tests.

American Developments

The only large engine designed and constructed in this country during the war was the Duesenberg Model H, a sixteen-cylinder Vee type built with either direct or geared down propeller drive. The output expected was 800 hp. at 1800 r.p.m., the engine having a piston displacement of 3393 cu. in. The direct drive engine weighed 1560 lb., which is rather low considering the power expected. However, no full power readings were ever made, as the engine tested after the Armistice gave considerable trouble and finally failed before the runs were completed. This engine was entirely unsuited for airplane installation on account of its length; nevertheless, it might have been developed for airships if the preliminary tests had been more successful.

The U. S. Air Service was therefore without any reliable engine of over 400 hp. at the end of the war. During the following year, designs were laid down for an eighteen-cylinder W type of 2778 cu. in. piston displacement known

as the model W1. This engine is composed of three rows of six cylinders each, with an included angle of forty degrees between each of the outer rows and vertical row in the center. Despite the fact that no engine of this type had ever been successfully developed, it was chosen by Army engineers because it embodied the particular inherent characteristics which were considered necessary for an engine of this class. This arrangement of cylinders probably gives as compact an engine for the displacement as can be produced, besides having the features of perfect inertia balance, and good evenness of torque delivered to the propeller.

The Air Service W1A Engine

The first one of these engines was completed near the end of 1920. The rated horsepower was 700 at 1700 r.p.m., and 750 at 1800 r.p.m., but the first dynamometer tests showed a much greater output. The original engine, except for the occasional substitution of a few new parts, completed five fifty-hour endurance tests, besides other tests which probably made a total of about 300 hr. running. Never before has the first engine built from any design been known to have made such a record, nor has any engine of its class been known to complete tests of equal duration.

Durability and reliability are the two characteristics of prime importance in large engines, consequently our engineers sought these features, giving weight only secondary consideration. It was firmly believed that once a durable engine was developed, the process of reducing weight could be conducted gradually and thus in no way affect the main features of the design.

The weight of the Model W1A engine is 1770 lb. and, when set to give normally 800 hp., represents 2.21 lb./hp. This figure is lower than any of the six more or less successful large engines described above with the exception of the Rolls-Royce "Condor." Modifications, which are being tested from time to time, indicate that the weight of this engine can be reduced to less than 1500 lb. without the slightest sacrifice in life and reliability. The weight per horsepower would then be 1.87 lb., the lowest value ever obtained for an engine of over 500 hp., excluding of course flash readings taken on experimental engines and lower in fact than for the majority of smaller engines.

Selection of Type is Sound

Flights have been made with the Model W1 engines in two types of airplanes. One is an armored ground attack airplane and the other is a day bomber. Both of these airplanes are new designs and consequently there has not been as many hours flown as there would have been ordinarily in a ship whose characteristics were better known. The reports of pilots who have flown these ships, however, are extremely favorable as regards engine operation.

The selection of the eighteen-cylinder W type engine as the best suited for outputs between 700 and 1500 hp. has proven sound. The cylinder dimensions can be held within tried limits, the moving parts are in almost perfect balance, and the power delivery is practically uniform. The overall dimensions assume good proportions for airplane installation, and the weight has already been shown to compare favorably with all other large types constructed to date. There are many problems connected with the design and development of the large engines, but our engineers have apparently been able to solve them. The U. S. Army Air Service now possesses one of the best bombing engines yet developed, and the experience which indicates that successful engines of 1000 to 1500 hp. can be built to weigh less than 1.5 lb. per hp.

New Officers of S.A.E.

Henry M. Crane, who has been actively identified with aeronautics for many years, has been elected to the presidency of the Society of Automotive Engineers. Born on June 16, 1874, he received his education in private schools, with a final year at Phillips Exeter Academy, being graduated in 1891. He was graduated from Massachusetts Institute of Technology in 1895 with the degree of Bachelor of Science in Mechanical Engineering and in 1896 with a similar degree in Electrical Engineering.

H. M. Crane, newly elected president of the Society of Automotive Engineers

After graduating he joined the laboratory force of the American Telephone & Telegraph Co. in Boston and worked there 2 years. In 1898 he was transferred to the engineering department of the Western Electric Co. in New York City where he worked first on the preparation of telephone switchboard installation specifications and later on the development of apparatus and circuits. In 1905 he left the engineering department to become engineering assistant to H. B. Thayer, general manager of the company, and the following year resigned from the company.

In 1906 Mr. Crane organized the Crane & Whitman Co. in Bayonne, N. J., for the development of gasoline automotive machinery and especially motor cars. This company later became the Crane Motor Car Co., and in 1914 was consolidated with the Simplex Automobile Co. He was president of the Crane Motor Car Co. and vice-president of the Simplex Automobile Co.

In 1916 the Wright-Martin Co. was organized and absorbed the Simplex company. Mr. Crane became vice-president in charge of engineering and remained in this position after the reorganization of the company as the Wright Aeronautical Corporation, about Jan. 1, 1920. He resigned from the latter company in March, 1920, and for the remainder of the year was not engaged in any regular business but did some consulting work. During 1922 he was engaged in the development of a new passenger car. On July 30, 1923, he was appointed technical assistant to the president of the General Motors Corporation.

H. L. Pope of the Wright Aeronautical Company, has been elected second vice-president of the Society of Automotive Engineers representing aviation engineering. Mr. Pope was born at Newton, Mass., Nov. 5, 1879. He received his early education at the Peekskill Military Academy and was graduated from the Massachusetts Institute of Technology in 1902 with the degree of Bachelor of Science in Mechanical Engineering.

After serving as an apprentice in the shops and drawing office of the Pope Mfg. Co., Hartford, Conn., he became assistant superintendent, holding this position for two years and being transferred at the end of that time to the post of factory manager at the Hagerstown, Md., plant of the same organization where he also remained for two years. In 1907 Mr.

Pope became factory manager of the Pope Motor Car Co. at Toledo and after remaining there for two years, accepted a similar position with the Matheson Motor Co., Wilkes-Barre, Pa.

In 1910 he returned to the Pope Mfg. Co. at Hartford and remained there for four years as factory manager, leaving at the expiration of that time to become associated with the Ferro Machine & Foundry Co. at Cleveland in a similar capacity. This position he held for two years.

Mr. Pope's active connection with aeronautics began in 1916 when he joined the forces of the Wright-Martin Aircraft Corporation and went to Los Angeles, Cal., as factory manager on the construction of the R1 and the J1 training planes for the Government. In July, 1918, he went to England and France to supervise the installation of the Hispano type engines that the Wright-Martin corporation was building at that time for installation in British SE5 fighting airplanes. While supervising the installation of these engines he also acted in a consulting capacity with regard to changes in the design of the airplanes in which these engines had to be mounted. When the Wright Aeronautical Corporation was formed in 1920 and its plant at Paterson, N. J., was established, he was appointed factory manager and at the present time is in charge of manufacturing activities on both airplanes and engines.

The Collier Trophy Award

For the second successive year the Air Mail Service of the Post Office Department has been awarded the Collier trophy for having made the most notable advance in aviation during the year 1923.

Official notice of the award was received on Feb. 9 by Postmaster General New from B. Russell Shaw, executive vice-chairman of the contest committee of the National Aeronautical Association. While the trophy awarded last year still is in possession of the Post Office Department, a formal presentation probably will be made to Postmaster General New some time next week.

Although there have been other notable achievements in the air during the past year the award committee, after a discussion of these claims, voted unanimously for making the award to the Air Mail Service.

The accomplishment upon which the award was based was the demonstration last August when, during a five-day test, the Air Mail Service spanned the continent twice daily in from 27 to 30 hr., flying mail ships at night over a lighted pathway 1000 mi. long.

This demonstration was merely a test to determine the practicability of night flying and the value, as aids to flight, of giant beacons strung across the plains country; yet, the experiment was completed without a single accident, without a single delay of the mails and the time made from coast to coast was better than hoped for by even the most sanguine of its promoters in the postal service.

The Collier trophy was established in 1911 by Robert J. Collier and is bestowed each year for the greatest achievement in American aviation. The first award in 1911 was to Glenn H. Curtiss for hydroairplane development. Mr. Curtiss captured the trophy again in 1912 for development and demonstration of the flying boat. In 1913, the trophy was given to Orville Wright for development and demonstration of his automatic stabilizer, while the following year it went to Elmer A. Sperry for the development and demonstration of gyroscopic control. In 1915 W. Starling Burgess won the trophy for development and demonstration of the Burgess-Dunne hydroairplane, but the next year it was given to Sperry for development and demonstration of the Sperry Drift Set. On account of the war the trophy was not awarded from 1917 to 1920. In 1921 it went to Grover C. Loening for development and demonstration of his aerial yacht.

In 1922 the award went to the United States Air Mail Service for "their wonderful achievement in completing a year's operation over the different routes from coast to coast without a single fatal accident."

The citation of the award just made was "to the pilots and other personnel of the United States Air Mail Service for successfully demonstrating to the world the practicability of night flying in commercial transportation."

The committee making the award is the same as originally appointed in 1911, and is composed of Orville Wright, G. W. Lewis, Frank P. Lahm, Porter H. Adams and B. Russell Shaw.

Regarding a Light Plane Meet

Editor, AVIATION:

In the past six months a considerable number of individuals and organizations have been cooperating to further the development of the light plane, and to bring about a light plane meet. Where so many minds are working together there must necessarily arise some divergence in the conception of the light plane and its purposes. For the sake of securing the greatest action with the least friction, it seems desirable to reformulate the essentials under consideration.

First of all, we must get away from the fundamental misconception that SPEED is the central factor in light plane development. The Pulitzer races have given all of us complexes on the subject of speed, and have, far from popularizing aviation, made most people apprehensive about it, and reluctant ever to fly. The next step must bring flying into the lives of the people, not as a spectacular stunt, but as a utility. It is only in the racer and in the war plane that there seem at present to be any interest; and a few mail planes are almost the only civil phase of American aviation.

The factors which will bring in the "taxi" plane are: (1) economy, (2) ease in handling in the air and on the ground, (3) all round performance, (4) climb; speed has a place only as a distant fifth item.

Such a plane will be accomplished by a wise direction of designers toward these ends. Competitions must be staged with this in view, and prizes offered for the sort of performances by which we wish to stimulate the interest in the light plane.

The Rules published for the light plane events in the Dayton races place the entire emphasis upon speed. It is true that in one of the events a climb of 500 ft. in each lap of the race is required, and in another, economy plays a slight role in the efficiency formula. But it is stipulated that to win the efficiency, one must place in speed. Designers will build to win the race, and in this case the result will be a little speed ship of range 60-90 with no practical value whatever.

We stand in great need of a Trophy donor. He will contribute the factor of utility to aviation, as Gordon Bennett and Pulitzer have given it speed, and Collier, efficiency. Twenty thousand dollars in prizes, together with adherence to a judicious set of rules, would give us a Light Plane Air Derby which would be epoch-making.

EDMUND ALLEN

British Aeronautical Research

The Air Ministry announces a reorganization of the arrangements for the control of aeronautical research.

Hitherto the Director of Research has been responsible, under the Air Member for Supply and Research, on the one hand for the direction of scientific research on all aeronautical matters and on the other hand for the application of the results of such research, as well as of practical flying experience, to the technical development of aircraft, aero engines and all accessories, in order to meet the requirements of the Royal Air Force and of Civil Aviation. The rapid development of aeronautical science and the increased requirements of the Royal Air Force have now made necessary a reallocation of the responsibilities of the Director of Research; and as from April next the control of the one side of the work will be transferred to a Director of Scientific Research while the other side will be assigned to a Director of Technical Development. The appointment of Director of Research will then lapse. The Director of Scientific Research and the Director of Technical Development will both serve under the Air Member for Supply and Research. Appointments to the new posts will be announced in due course.

Zachary Lansdowne to Command Shenandoah

General Shake-up in Personnel Follows Rumors of Friction At Lakehurst Naval Air Station

The rumblings and rumors of dissatisfaction and unharmonious conditions at Lakehurst in connection with the Shenandoah have at last had the inevitable result of a general shifting of officers. No one could have visited Lakehurst for the last few months without sensing a condition that was wrong. It was even freely discussed by the enlisted personnel.

Capt. F. R. McCrary, who has been relieved as commander of the Shenandoah, did not have the confidence of the lighter-than-air contingent owing to his inexperience in this line. Rank seems to have been the primary cause of all the difficulties. The lighter-than-air experts did not have high enough rank to command the Lakehurst Naval Air Station and the officers required to operate the airship. Lt. Comdr. Zachary Lansdowne, the new commander of the Shenandoah, as will be seen by the biography reprinted from *Who's Who in American Aeronautics*, has had a wide experience in aeronautics specializing in airship work.

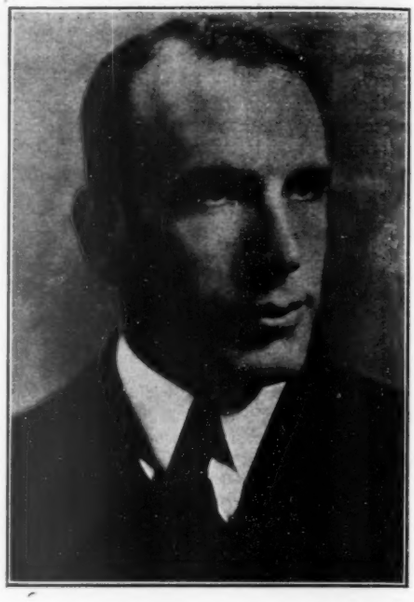
New Commander is Well Fitted

Selection of Lt. Commander Lansdowne for this important command is based solely on his peculiar fitness. No other officer in naval aviation has had as much experience in handling rigid airships. When the British airship R34 crossed the Atlantic and returned several years ago he was aboard as observer for the United States. While in England he had extensive training in handling big airships and was licensed as a pilot there.

Lt. Comdr. B. G. Leighton who succeeds Comdr. R. P. Weyerbacher as senior engineering officer on the Shenandoah has also had a long experience in aeronautical engineering as will be seen from his biography reprinted from *Who's Who in American Aeronautics.*

Commander Weyerbacher who superintended the construction of the Shenandoah has had the confidence of everyone and his assignment to the Naval Aircraft Factory will be regretted by those who have observed the excellent work he had done in connection with the construction and operation of the big ship. Comdr. J. H. Klein, formerly executive officer of the Shenandoah, is to command the Lakehurst Station temporarily but expects to be assigned soon to an Asiatic detail when his rigid airship training is completed. Lt. Comdr. M. R. Pierce and Lt. Comdr. J. M. Deem have been detached from the Shenandoah to the Lakehurst station. Lt. E. H. Kincaid will go to sea. Commander McCrary will command the Canopus, a submarine tender of the Pacific Fleet.

So serious had the condition become that even this late-hour attempt to sweep the naval station and the Shenandoah clear of Navy politics may prove unsuccessful.



Lt. Comdr. Z. Lansdowne, U.S.N., the new commander of the airship Shenandoah

The coming of the shakeup has been indicated for some time. It is the old rivalry, which in this instance has grown into personal animosity, between line officers of the Navy and those assigned to special work.

When the trial flights of the ship began, before the ship was commissioned, Weyerbacher was still in command. Line

BIOGRAPHICAL NOTES ON COMMANDERS LANSDOWNE AND LEIGHTON

Zachary Lansdowne

LANSDOWNE, ZACHARY, Lt. Comdr., U. S. N.; born, Greenville, Ohio, Dec. 1, 1888; son of James Moreton Lansdowne and Elizabeth (Knox) Lansdowne; married, Ellen MacKinnon, May 27, 1913.

Educated: U. S. Naval Academy, 1909.

Professional: Two years sea service as midshipman on battleship U.S.S. Virginia; four years sea service, torpedo boat destroyer, U.S.S. McCall.

War Service: Ordered to U.S.N.A.S., Pensacola, Dec. 1916; ordered to England, Aug. 1917; service at British Air Stations during war; R.N.A.S. Cranwell, R.N.A.S. Polgate, R.N.A.S. Pulham, R.N.A.S. Howden, until March 1918; March 1918 to Sept. 1918, duty Office of Naval Operations, (Aviation) Navy Department Washington, D. C.; ordered to France and commanded U.S.N.A.S., Guipavas, France; duty Paris Headquarters, March to May 1919 following Armistice; made flight fram East Fortune, Scotland to Mineola, L. I., U. S. A. in July 1919 on airship R-34; First westward and first transatlantic flight.

War Honors: Navy Cross (U. S.); Air Force Cross (British).

Member: New York Yacht Club; Army and Navy Club (Wash.).

Present Occupation: Bureau of Aeronautics, Navy Department, Washington, D. C.

Address: Navy Department, Washington, D. C.; home, Greenville, Ohio.

Bruce Gardner Leighton

LEIGHTON, BRUCE GARDNER, Lt. Com., U.S.N.; born, Tunkhannock, Pa., June, 1892; son of James Gardner Leighton and Maria (Ackley) Leighton; married, Ethel Ruth Major, June 30, 1915.

Educated: Tunkhannock High School; U. S. Naval Academy, Class of 1913.

Professional: U. S. Navy since 1913.

Aeronautical Activities: Began flight training, Pensacola, April 1, 1916; Naval aviator April, 1917, Naval Aviator No. 40; Charge of Motor overhaul shops, Pensacola Air Station, April 1917 to January 1918; January 1918, temporary duty in connection with fitting out U. S. Navy Air Service at Killingholme, England; May to December 1918, at Killingholme as executive officer and squadron Commander, and Commanding officer from Nov. 1st until armistice; North Sea Anti Submarine patrol and reconnaissance; Jan. 1919, detailed as squadron commander of flying boat squadron Air Force, U. S. Atlantic Fleet, continuing until Dec. 1, 1920; during this period squadron maintained position with fleet at all times, cruising two years with fleet in Atlantic waters and in Caribbean waters, operations extending from Newport, R. I. to Kingston, Jamaica, Virgin Islands and practically all ports between these limits; developed fleet aircraft tactics, search and reconnaissance, spotting for gun fire, bombing, etc.; squadron cruised more than 25,000 miles during this time; Bureau of Engineering, Dec. 1920 to present date, in charge of heavier-than-aircraft power plant section, aviation division.

Flying Rating: Naval Aviator No. 40, April 17, 1917.

Present Occupation: In charge of heavier-than-aircraft power plant section, Bureau of Engineering, Navy Department.

Address: Bureau of Engineering, Navy Dept., Washington, D. C.; home, 2034 Allen Place, N. W., Washington, D. C.

War Service: U. S. Army, Nov. 1917 to Dec. 1918.

Member: American Legion; Aero Club of America.

Address: Prairie, Miss.

officers on her were under his direction. Line officers resented this. Later when the ship was put in commission, Captain McCrary took Weyerbacher up in place of line officers. They disliked this still more.

Then came the decision of the Polar expedition. It was said that McCrary did not have faith in lighter-than-air craft at first and was opposed to the Polar trip. Lakehurst felt that he should have been transferred at once. But he was kept and when the Polar trip was decided upon, he did everything he could to push it forward.

Then came newspaper stories telling of dissension in the station, of sharp words between Lieut. E. H. Kincaid, a line officer, and Capt. Anton Heinen, German airship expert on the wild night flight of the Shenandoah after it broke loose from its mooring mast, of enlisted men failing to volunteer for the Polar trip, "because they didn't want to follow McCrary."

Officials at the Navy Department have made no attempt to conceal the fact that friction among the officers at Lakehurst and those of the Shenandoah's command led finally to a situation where action such as that now taken could no longer be postponed.

Rear Admiral William A. Moffett described the change as being "in the best interests of the Navy."

The change will make it possible for Capt. Anton Heinen, the German Zeppelin expert, who is now a civilian employee of the United States Government, to make the trip to the polar regions without friction. Captain Heinen is regarded as one of the foremost airship pilots in the world, but the conflict between him and some of the Shenandoah officers came to the surface on the flight in the storm last month.

The Shenandoah, which is being refitted after her runaway flight on Jan. 16, when she was torn loose from her steel mooring mast by a gale, is dismantled in her hangar and will not be ready for service before May. The damage has been estimated at $100,000.

Shenandoah's Arctic Expedition Postponed

President Coolidge Halts Trip for Authorization by Congress

President Coolidge has halted the plans of the Navy Department for sending the Shenandoah to the North Pole this summer. Secretary Denby issued on Feb. 15 the following official statement regarding the postponement of the flight.

"Orders to cease preparation for the polar expedition were issued today by the Secretary of the Navy. The President, having been informed that considerable opposition existed to the required expenditure of $350,000, instructed the department not to proceed with the expedition at this time, nor until the naval bills have been considered and Congress given an opportunity, if it desires, to express its views upon the polar expedition."

Result of Congress Criticism

President Coolidge is not opposed to the projected expedition, and is willing to have the Shenandoah used in the Arctic regions should Congress grant its permission. His decision to halt the plans is based on the grounds of prudence. There has been considerable criticism in Congress of the Navy's project, and in view of this, it was stated at the White House with the authority of the President, that he did not deem it wise to go ahead with the expedition without the expressed consent of Congress.

An advance party of officers and men which left Washington for Nome, Alaska, to carry forward preliminary plans for the expedition, was ordered by the department to return to this city. The aircraft equipment and planes, which were to accompany the advance party to Alaska will be held at Bremerton, Wash., a short time, but unless Congress soon grants authority for the expedition this equipment will be brought back to the naval air base at Washington.

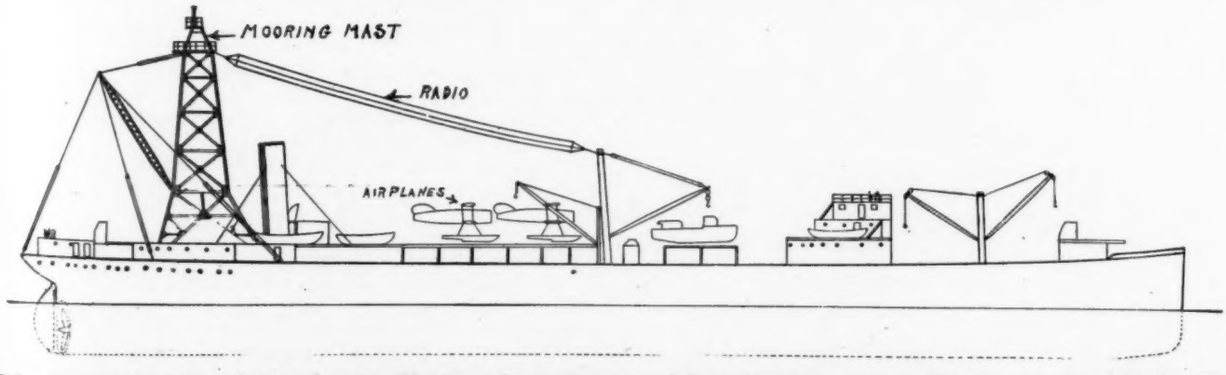
Naval officers interested in the enterprise believe that unless Congress indicates within ten days whether it will sanction the polar expedition and the use of the Shenandoah, the plans of the Navy Department for the exploration of the Arctic region during the summer of 1924 would have to be abandoned. A resolution is pending to authorize the expedition.

Hopes for Appropriations

Discussing his action with certain White House callers, President Coolidge said that, in his opinion, it would be unfortunate to go ahead with preparations for the polar flight and then find that Congress was unwilling to authorize the project, or to make the necessary appropriations. The President, his authorized spokesman said, considered it the "part of prudence to wait and see what might develop," with respect to the attitude of Congress. Mr. Coolidge is understood to be hopeful that Congress will make the appropriations and authorize the project, in the interest of science.

At the Navy Department it was stated that the cost of the expedition proper would have been about $135,000, but that it would cost several hundred thousand dollars more to install mooring masts for the airship on two fuel tenders, the Patoka and the Ramapo.

The Patoka is en route to the Norfolk Navy Yard. Since it has been designated for use as a fleet base for the Shenandoah, it would have been equipped with a mooring mast anyway, and, for that reason, the orders for erecting the mast on that ship have not been canceled. The Ramapo, now at Mare Island Navy Yard, was to be stationed at Nome as the anchorage ship there for the Shenandoah. Orders for installing the mast on the Ramapo have now been canceled.



Side elevation of the new airship tender Patoka as she will appear when alterations now under way are completed. This vessel will serve as a fleet base for the Shenandoah

One of the criticisms in Congress of the Teapot Dome and Elk Hill naval oil leases has been that Congress sanction was not sought for them. The President has come to realize, it is understood, that if the Shenandoah were sent on a polar expedition without Congressional approval, and some tragedy should occur through the loss of the airship, the position of the Administration would become rather embarrassing.

The naval bill, to cover expenditures for the fiscal year 1925, was voted out by committee, with a report attached saying that the committee had discussed the polar flight plan with Secretary Denby and naval officers but would not interfere with it in any way in the supply measure, since expenditures for the flight were to be made from funds already available, and not from those provided in the 1925 supply measure.

Opposes Congressional Action

Chairman Madden of the House Appropriations Committee is understood to be in favor of the flight but opposed to any Congressional action in connection with it. Representative French, Republican, of Idaho, Chairman of the Naval Subcommittee of the Appropriations Committee, was at first inclined to be dubious as to the wisdom of the attempt to reach the Pole by air.

A resolution by Representative Taylor, Democrat, of West Virginia, calling on Secretary Denby for information on the polar project, caused the committee to take it up with naval officials. After hearing Mr. Denby, Rear Admiral Moffett, chief of the Naval Air Service, and Commander Bartlett, Arctic explorer and reserve officer called to active service to participate in the flight, the committee dropped this inquiry. Representative French said that the naval officials had made out a very good case for their plans.

Representative Byrnes, Democrat, of South Carolina, a member of the Naval committee, said that he knew that an amendment to the Naval bill would be offered in the House, making funds provided for 1925 unavailable for the purposes of the Polar trip.

Air Transport in Germany

The year 1923 was an experimental year for German aviation. Basic lines of an international flying system were planned and carried through, giving Germany contact by air service with all neighboring countries, according to the Western European Division of the Department of Commerce. During the summer of 1923, daily flights were made on the following 19 lines:

1. London - Paris.
2. London - Brussels - Cologne.
3. Manchester - London - Rotterdam - Amsterdam - Bremen - Hamburg - Berlin.
4. Paris - Brussels - Rotterdam - Amsterdam.
5. Paris - Strassburg - Prague - Warsaw.
6. Paris - Prague - Vienna - Budapest - Belgrade - Bukarest Constantinople (1600 km.).
7. Toulouse - Barcelona - Alicante - Malaga - Rabat - Casablanca (1600 km.).
8. Antibes - Ajaccio.
9. Seville - Larache.
10. Hamburg - Copenhagen.
11. Berlin - Dessau - Leipzig - Fuerth - Munich.
12. Munich - Zurich - Geneva.
13. Munich - Vienna - Budapest.
14. Berlin - Danzig - Koenigsberg.
15. Koenigsberg - Memel - Riga - Reval.
16. Reval - Helsingfors.
17. Koenigsberg - Smolensk - Moscow.
18. Danzig - Warsaw - Lemberg.
19. Moscow - Charkow - Rostow - Mineralnuje - Wodu Grosnij - Baku - Tiflis (Junkers Air Service, Russia)—2800 km.

The Junkers Werke and Aero-Lloyd participated in eleven of the above lines. These two firms now largely control German commercial aviation.

The former concern accomplished 1,070,000 flight km., carried 17,750 passengers and 85,776 kg. of mail and freight, while the latter covered 274,465 km., carried 2,528 passengers and 1,415,600 kg. of mail and freight (including newspapers to and from England).

It is planned through international agreement to extend activities during 1924. The Junkers-Werke proposes to establish the following lines: a through line, London-Berlin-Lemberg-Odessa-Baku-Teheran; a through line, London-Rotterdam-Cologne-Strassburg-Zurich-Genoa-Naples (with branches to Tripoli and North Africa) -Brindisi-Athens (and branch to Smyrna) -Crete-Port Said-Cairo; and a line from Lisbon to Madrid, Barcelona, Marseille, Genoa, Trieste, Vienna, Warsaw and over Nizhin-Novgorod to Siberia and China.

It is also planned to utilize the night for travel by a combination train and airplane service, using the train for the night portion of the journey. Where routes include a considerable journey over or along the edge of water, such as the Genoa-Naples-Brindisi-Athens-Smyrna line, the night trip will be by seaplane.

Lawrence Sperry's Funeral

Funeral services for Lawrence B. Sperry, who was lost in the English Channel with his airplane last December, were held Feb. 16 in the Protestant Episcopal Cathedral in Garden City, L. I., while ten Air Service planes from Mitchel Field circled above the edifice. After the services the airplanes flew above the funeral cortege to Brookville cemetery and dropped flowers on the grave.

A large and representative gathering from the aeronautical world attended the services, some of whom flew up from Washington. Among these were Maj. Gen. Mason M. Patrick, Chief of Air Service, who came in his own DH4 together with Capt. St. Clair Streett; Lieut. Harold H. Harriss, chief test pilot at McCook Field; Emile Berliner, inventor of the helicopter bearing his name; Capt. Burdette S. Wright, chief of the Airways Section of the Air Service; and Maj. Temple N. Joyce of Baltimore.

Comdr. Warren G. Childs represented Rear Admiral Moffett, Chief of the Naval Bureau of Aeronautics; Comdr. S. Tajima, the Japanese navy; J. W. Sutherin, the Air Mail Service; Maj. William Hensley, Mitchel Field; S. S. Bradley, the Aeronautical Chamber of Commerce; Archibald Black, the American Society of Mechanical Engineers.

The representatives of American aviation who acted as honorary pall bearers were: Glenn H. Curtiss, Charles Lawrance, Grover C. Loening, Archie Roosevelt, Frank H. Russell, Alfred Verville and Chance Vought.

Members of the family at the service were Mr. and Mrs. Elmer M. Sperry, father and mother of the deceased; his widow, Mrs. Winifred Sperry with their children, Winifred and Scoville, and his brothers, Elmer and Edward.

Club Joins N.A.A. in Body

Organized in mid-ocean, the CPC chapter of the N.A.A. enjoys the unique distinction of being the first unit ever formed in that manner.

This new chapter is composed of 550 members of the Hundred Pointer's Club of the National Cash Register Co. of Dayton. It was formed several days ago aboard the steamship Orduna en route to New York from Bermuda where the 1924 annual sales convention of expert N.C.R. salesmen was held.

Membership applications were received by H. W. Karr, assistant to the president of the N.A.A., who was aboard. Every member of the sales organization joined the chapter.

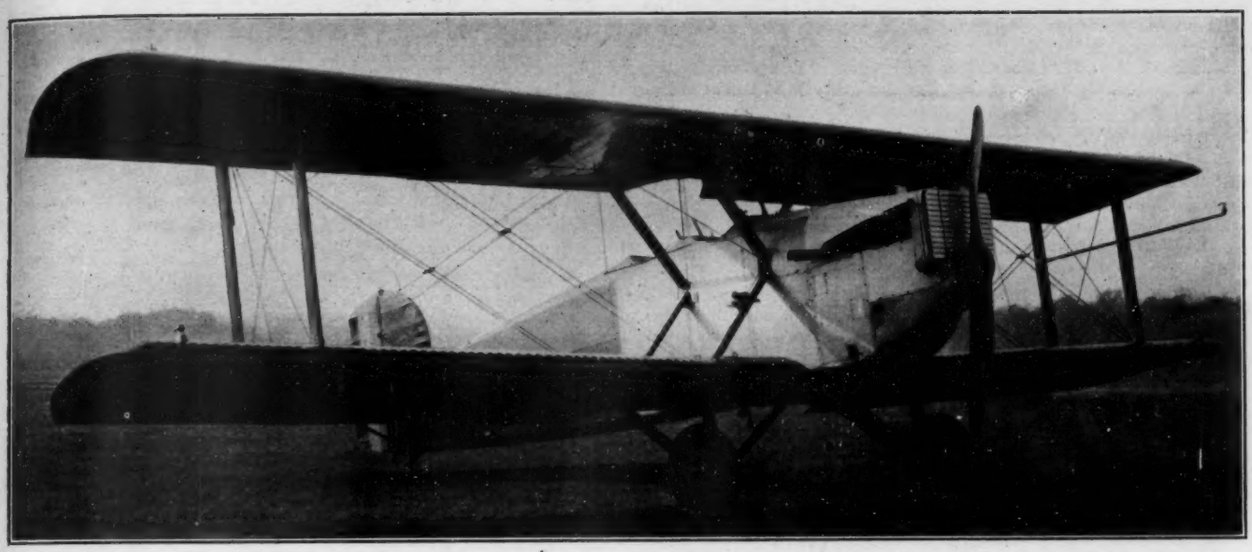
As the Orduna docked, Frederick B. Patterson, president of the N.A.A., was among the first to greet the new members.

Books Received

AUTOMOTIVE MAGNETO IGNITION. By Michael E. Toeppel, Instructor, U. S. Government School for the Study of Magneto Ignition. (150 pp., ill'd. Spon & Chamberlain, New York.)

MAGNESIUM. A Handbook of Information and Data Relating to the Use of Magnesium and Magnesium Alloys. (178 pp., ill'd. American Magnesium Corp., Niagara Falls, N. Y.)

The Douglas World Cruiser Described



One of the Douglas World Cruiser airplanes which the Army Air Service will fly around the world, starting from Los Angeles about March 15, bound for the Far East

The Douglas World Cruiser Airplanes were selected for the Round-the-World Flight after careful consideration of all available types. They are conventional type biplanes which carry a large load in proportion to their own weight, giving them a long non-stop flying range, and yet they can be maneuvered into and out of small landing areas.

Cruising Range of 2200 mi.

Each of these airplanes weighs without gasoline, oil or passengers about 4,260 lb. Fully loaded, the weight is about 8,830 lb. Of the load of 4,570 lb. nearly 4,000 will be fuel and oil. This amount of fuel and oil will allow a flight of approximately 2,200 mi.

The engine used is the improved Liberty weighing less than 2 lb. per hp. With wide open throttle it develops 420 hp. and will carry the plane of over two tons at a speed of about 100 mi./hr. This Liberty engine is greatly improved over former models; air intake passages have been rearranged to prevent back firing and danger of fire; gasoline pumps for the carburetors are so fitted as to reduce danger from gasoline under pressure; stronger timing gears have been provided to operate the two ignition systems.

The fuselage construction is of steel tubing welded and riveted in place; this gives additional strength over the usual stick and wire construction in addition to freedom from warping and loss of alignment.

The planes can be quickly adapted for landing and take-off on either land or water by a change from the 36 by 8 in. wheels to pontoons. The pontoons have a reserve displacement of 85 per cent, based on the maximum weight of the plane.

Carry 600 gal. of Gas

A total of 600 gal. of gasoline is carried in six tanks; a 60 gal. gravity tank is in the center section of the upper wing; one of 150 gal. is behind a fire wall in rear of the engine; one of 160 gal. is beneath the floor of the pilot's cockpit; one of 105 gal. is under the rear cockpit; and in the butts of both lower wings are tanks holding 62 gal. each. Engine driven gear pumps are provided to convey the fuel to the engine and a hand pump for emergency use is located in the cockpit.

Fifty gallons of lubricating oil are carried in two interconnected tanks underneath the engine.

SPECIFICATIONS

FUSELAGE:
The fuselage is made in three detachable sections—engine section, mid section, and rear section. All sections are made of steel tubing.

WINGS:
The wings are of standard box beam and built up rib construction. The upper wing is made in 3 panels. The lower wing is made in 2 panels hinged at the stub wing which is built integral with mid section of fuselage. The wings may be folded thus requiring small storage space.

TAIL SURFACES:
The vertical fin and horizontal stabilizer are of standard eye beam and built up rib construction. The elevator and rudder are made of steel tubing.

CHASSIS:
The axles are made of alloy steel tubing heat treated after fabrication. The struts are steel tubes streamlined with wood. The shock absorber consists of rubber shock absorber cord.

TAIL SKID:
The tail skid is made of steel tubing and is so connected that while maneuvering on the ground it steers with the rudder thus giving quicker and more positive turning action.

LANDING GEAR—Water Type:
Twin floats are used which are of built up wood construction. The top covering is 3 ply veneer—the bottom planking being two plies of mahogany.

CHARACTERISTICS

Wing structure, Biplane.

	Seaplane	*Landplane*
Weight empty	5100 lb.	4300 lb.
Disposable load	2615 lb.	2615 lb.
GROSS WEIGHT	7715 lb.	6915 lb.
Gasoline capacity	450 gal.	
Wing loading	10.9 lb. per sq. ft.	9.7 lb. per sq. ft.
Power loading	18.3 lb. per hp.	16.3 lb. per hp.

Engine, Liberty 12
Wing section, U.S.A. 27
Wing area (incl. ailerons), 707 sq. ft.
Aileron area, 58 sq. ft.
Stabilizer area, 60 sq. ft.
Elevator area, 32 sq. ft.
Rudder area, 16 sq. ft.
Fin area, 12 sq. ft.
Distance from c.g. of airplane to elevator and rudder hinge, 23 ft. 6 in.
Wing span (upper and lower), 50 ft.
Span (folded), 20 ft. 2 in.
Height, 13 ft. 7 in.
Length, 35 ft. 6 in.
Wing angle with propeller axis, 3 deg.
Dihedral angle, upper, 0 deg.
Lower, 2 deg.
Aspect ratio, 6.7
Gap chord ration (mean), 1.1 to 1
Stagger, none

PERFORMANCE

Seaplane, 7700 lb.
7000 ft. service ceiling
100 mi./hr.
35 mi./hr. landing speed
Landplane, 6900 lb.
10,000 ft. service ceiling
103 mi./hr.
53 mi./hr. landing speed

AIRPORTS AND AIRWAYS

Dayton News

By Maurice C. Hutton

Walter Lees, pilot for the Johnson Airplane and Supply Company, who brought the Flying Club of St. Louis trophy back with him from the St. Louis gathering, arrived home in a new five-passenger Lincoln-Standard aerial limousine this week.

"It's a beaut," Walter exclaimed to "Jimmy" Johnson on landing at the Johnson flying park. Lees made the return trip from Lincoln, Neb., by way of Chicago where he looked up his old friend, Maj. R. W. Schroeder, and got a passenger on to Dayton.

• • •

In a letter from B. Russell Shaw, executive vice chairman of the contest committee of the N.A.A., Lieut. John A. Macready was informed that all records made by him and Lieut. Oakley G. Kelly in the trusty T2 are to stand as world marks.

These records were upheld by the F.A.I. at a recent meeting in Paris when it was decided to place the achievements of Lieutenants Richter and Smith, of San Diego, in a different category. By this action the phenomenal non-stop transcontinental flight on May 2-3, 1923; the duration record of April 16-17, 1923, and the resulting speed records over 2,500, 3,500 and 4,000 km. courses, remain chalked behind the names of Lieutenants Macready and Kelly.

"I am glad to hear it," Lieutenant Macready remarked in his modest way after reading the letter.

• • •

The familiar roar of a Curtiss D12 motor was heard over the city during the last several days as test pilots from McCook field put the new Curtiss pursuit ship through flight trials.

Except for minor modifications, this ship is an exact counterpart of the "streak of greased lightning" in which Lieut. Russell Maughan tried to span the continent between dawn and sunset last summer. Lieut. W. H. Brookley made the initial flight.

• • •

First tests with the Army's barrage balloon were held at Wilbur Wright field under supervision of the Lighter-Than-Air section of the Engineering Division. The bag was let up 6,000 ft. then drawn down for alterations on the suspension ropes. A quarter-inch steel cable is used on the ascensions and the bag is designed to go 15,000 ft. high without losing any of the original hydrogen supply.

• • •

The Dayton Chapter of the N.A.A. and the Dayton Chamber of Commerce gave voice to emphatic protests against the action of the House Appropriations Committee in striking out the Post Office Department request for air mail funds.

Before returning to Washington, Congressman Roy G. Fitzgerald, of Dayton, the recognized leader of aviation in the House of Representatives, assured Frederick B. Patterson, president of the N.A.A. and Walter B. Moore, chamber secretary, that he would do all in his power to bring about an appropriation of funds for the air mail service.

• • •

Amateur and professional artists of Dayton have been asked to submit a poster and cover design for programs in connection with the 1924 Pulitzer races here Oct. 2, 3 and 4.

A cash prize of $100 has been offered for the winning design. Entries are to be finished in three colors in addition to the background, and be presented on a card 18 by 24 in. The contest closes March 1.

• • •

Maj. L. W. McIntosh, commandant of McCook field and officer in charge of the Engineering Division; Maj. E. L. Hoffman, head of the equipment section, and E. T. Jones, of the power plant section, attended recent meetings in Washington of the National Advisory Committee for Aeronautics.

Lieut. George E. Ballard, chief inspector of the compilation section, Wilbur Wright field, is on an extensive tour of air service depots in the East and Middle West. Capt. Henry Pascale, operations officer at this station, flew to Bowman field, Louisville, Ky., with supplies recently.

• • •

Aeronautical circles in Dayton continue to hum with work being done in preparation for the around-the-world flight in April. The power plant section of the Engineering Division has turned out 39 Liberty engines, "as good as new," for immediate installation and shipment all over the globe. Bradley Jones, navigation expert, spent several days at Langley field, Va., instructing the flight personnel, after which Lieut. Donald L. Bruner, of the electrical section, explained the work of ignition systems.

Maj. A. W. Robins, commanding officer of the Intermediate Air Depot, Wilbur Wright field, has been appointed supply officer and advance man in the United States for the cruise. He assumed this position when Capt. E. E. Adler, chief of the compilation section, went to Walter Reed hospital, Washington, suffering from a serious ailment.

Monmouth News

By Ralph B. Eckley

The entire board of directors of the Mid-West Airways Corporation was re-elected at a recent stockholders meeting held at the Chamber of Commerce. A report of the flying activities for the year was presented, which showed the receipts for the flying season to be $4,300, which more than paid the operating expenses of the field and enabled the corporation to make payments on a number of old bills.

The directors re-elected were Chester J. Smith, mayor of Monmouth; C. G. Jenks, F. B. Pattee, E. P. Field, Thomas Hewitt, C. W. Buchanan and I. F. Dains. The directors met a few days later and elected the following officers: President—I. F. Dains; Vice President—F. B. Pattee; Secretary-Treasurer—C. W. Buchanan; Attorney—E. P. Field; General Manager—C. G. Jenks; Pilot Manager—John Livingstone.

Following the completion of a successful drive for additional working capital, a new hangar was erected at the local field. The new hangar is located 90 ft. north of the first. Adequate workshop facilities are provided in the frame structure.

The report included the time in the air and the miles flown and the number of passengers carried by Pilot Livingstone during the flying season in the three ships belonging to the corporation. The total flying time was 199 hr. 9 min. for a total of 13,915 mi. Landings with passengers were 315, while 381 landings were made with students. The total number of passengers carried were 571. Not a forced landing was made during this time.

Preparations are being made to take care of long distance business, such as carrying news pictures of sporting events, a large amount of which was lost last year on account of lack of suitable equipment.

• • •

A frequent visitor at the Monmouth field last year was E. M. Laird of Wichita, Kans., who made frequent business trips to Chicago in his Laird Swallow. Nearly all pilots flying from Chicago to Kansas City find it makes the trip less tiresome to stop off at Monmouth for a short time to rest up and tune up their plane, Monmouth being about 200 mi. from Chicago and 250 from Kansas City.

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Leo Koretz of Chicago, who disappeared early in December from that city after having obtained $5,000,000 through a cleverly conducted oil swindle, is believed to have been the man who attempted to hire Pilot Livingstone to fly to Honduras. Pilot Livingstone refused to make the trip as the party telephoning him from Chicago would not give his name and

the trip sounded suspicious to the local pilot. Koretz later secured a plane for the trip in Chicago.

• • •

During the extreme cold spell which prevailed in Illinois during January, Pilot Livingstone of the Mid-West Airways made a trip to Rockford, Ill., where he staged an altitude flight test for a gas and oil company of that city. Livingstone flew his own JN4 on the flight, attaining an altitude of 11,200 ft., where the temperature was 32 deg. below zero. The flight was made as a test of the cold weather flying qualities of the oil company's products.

• • •

The first man to recover his hearing by the use of the airplane, A. S. Harris of Chicago, was in Monmouth recently and visited the local field. Mr. Harris is an ex-service man and lost his hearing during the 1914-18 War. After returning to Chicago he started taking treatments with Dr. Ferguson, an enthusiastic flying advocate, who recommended that Mr. Harris take an altitude flight in the hope of restoring his hearing. After ascending 16,000 ft. he recovered his hearing to a large extent. Since then, however, he has been forced to make trips every two weeks into high altitudes in order to improve his hearing, which becomes weakened after a short period on the ground.

• • •

Cross country fliers on their way to Kansas City, Omaha, or to Chicago are invited to make use of the Monmouth field, which is large enough to land most any ship. The field is level and well drained and is open 12 months of the year. It is located just about 200 mi. west of Chicago on the Burlington railroad and furnishes the most convenient stopping point for long distance trips. Hard roads, telephone, gas, oil and repairs add to the attractiveness of the field, which was declared by Captain Streett, of the Air Service, who was here a year ago taking aerial photos, to be one of the best commercial fields in the country. The field is also located on a direct line between Minneapolis and St. Paul and St. Louis, and fliers using this Northern route will find the field useful, as the next field is 75 mi. north at Rock Island.

Chicago News

By Otto Klein

The sensational disappearance of Jack Homan of Minneapolis and Jack Cope, of Checkerboard Field, who in a driving snow storm set out in a Jennie a week ago to fly from Checkerboard to Ashburn field, caused big headlines and columns of wide publicity for the fliers. Immediately after leaving Checkerboard field, the fliers lost sight of the earth and after flying for a considerable time over snow covered country with all landmarks obliterated, they suddenly found themselves over Lake Michigan. With what little sense of direction they had left they turned shoreward, hoping to reach a good landing place before their limited gas supply would give out. They finally landed near a farmhouse somewhere in Indiana, where they remained over night.

• • •

David Behncke is at present building a light two-seater monoplane to be powered with a 60 hp. air cooled motor. Details are not yet available.

• • •

The impending passage of the Winslow Bill is creating a great deal of discussion in Chicago aviation circles. The general impression is that through the unlimited power vested in the secretary of commerce, regulations may be put in force that will hamper the small flier and builder. The Chicago Chapter of the N.A.A. has provided all of its members with copies of the bill and a special meeting was held at the Hamilton Club at which the bill was thoroughly discussed. The Aviation Club of Chicago will also call a special meeting shortly for the same purpose.

Importance of Safety Code

Legislation providing for an aeronautical safety code, which is held to be essential to the development of commercial aviation, is recommended in a statement issued on Feb. 9 by the Transportation Department of the Chamber of Commerce of the United States.

"Such legislation," the bulletin states, "will do more than anything else for the encouragement of aeronautics. The United States is the only country of any importance which does not have an aeronautical safety code. Canada has a complete code patterned after the International Convention on Aerial Navigation, and at present United States fliers are permitted in Canada only through international courtesy, and then only after a certificate of inspection has been issued by our Army or Navy."

The advantages to business derived from the expediting of the delivery of mail by airplane is emphasized in the bulletin. "From the standpoint of the banker," it continues, "dealing extensively with interest payments in one form or another, speed of movement of mail is an extremely important factor, and any reduction in the time in transit of collections and other security items will benefit business by cutting down the amount of capital required to carry accounts, or by making such capital available for other purposes."

"The National Chamber," the bulletin states in conclusion, "stands for the enactment of suitable enabling legislation by Congress to govern the flight of aircraft and the airways over which they operate, thus encouraging aviation in the development of new services to commerce and as an important means of defense. Given this, the designation of air routes and the assignment of air terminals will naturally follow. Such legislation will not only make for greater safety in flying by eliminating the irresponsible element, but should tend to stimulate commercial aeronautics in all its phases."

Denver Lays Plans for 1926

According to the N.A.A. Review, aeronautical circles in Denver, Colo. are making preparations to secure the International Air Races for 1926. Notice that the Colorado metropolis is a prospective bidder for the events is given in a recent article in the Denver Post, which reads in part as follows:

"The idea of celebrating the finish of the Moffat Tunnel by a great exposition has met with the unanimous endorsement of the people of the entire Rocky Mountain region. Hundreds of letters are being received daily, many of them containing valuable suggestions as to the form this exposition should take. The idea of a great aeronautical exposition seems to be the predominant one suggested. This means that during the exposition this city would be the flying center of the world; all flying lanes and routes would center in Denver — all the racing contests would be held there."

While the place of the 1925 races has not yet been decided upon by the N.A.N., it will be remembered that at the St. Louis meet the delegation of the Aero Club of Minneapolis boosted this city for the 1925 air races should they be unable to obtain them for 1924.

Elias Bomber to be Tested

The first of the new Elias bombers which the builders say will be capable of a non-stop flight from Chicago to New York city carrying enough bombs to blow up the largest battleship, is being assembled at McCook field.

Two of these bombers, each armed with five machine guns which leave no unguarded "blind" spot, have been ordered by General Patrick, chief of the Army Air Service, for experimental work.

On their assembly by the Engineering Division, they will be given thorough ground and service trials. This is expected to take several weeks.

The machines were built by G. Elias and Bro. Inc., of Buffalo, N. Y., and are said by the manufacturers to be able to climb quicker, fly faster and come down at a slower speed than anything in their class.

The Elias bomber is propelled by two 400 hp. Liberty motors and has a total wing area of 1,500 sq. ft. It is designed to carry a load of 6080 lb. to an altitude of 13,500 ft. The rated maximum speed is 105 mi./hr. and 65 mi./hr. with full load.

N.A.A. Mission to South America

Godfrey L. Cabot of Boston, governor-at-large of the N.A.A., will shortly visit Brazil, Uruguay, Argentina and Chile as an accredited representative of the N.A.A. to confer with the aeronautical authorities and aero club officials of those countries upon aeronautical matters.

UNITED STATES AIR FORCES

U. S. ARMY AIR SERVICE

Air Service Candidates for Military Academy

The following Air Service candidates have been designated for the Military Academy entrance examination to be held beginning March 4, 1924, with a view to admission to the Academy on July 1, 1924:

Pvt. John L. McDonald, 22nd Obs. Sqdn., 4th Corps Area; Pvt. Howard Allen Wolfe, 95th Pursuit Sqdn., Pvt. Clifford L. Jennings, 26th Attack Sqdn., 6th Corps Area; Corp. Edwin Randolph Dixon, Hqrs. Det., and Pvt. 1st Cl. Allison R. Hartman, 65th Serv. Sqdn., 9th Corps Area.

Hangar for Barling Bomber

The world's largest airplane hangar is being constructed at Wilbur Wright Field, Dayton, Ohio, to house the Barling Bomber. A news dispatch states that before the Barling Bomber can be flown again about $50,000 will have to be spent in repairs due to the ship's exposure to the weather during the past eight months.

Squadron Changes Station

The Adjutant General's Office, under date of Feb. 5, announces change of station of the 28th Bombardment Squadron from Clark Field, P. I., to Camp Nichols, Rizal, P. I.

U. S. NAVAL AVIATION

Party Leaves to Establish Arctic Flying Base

The advance guard of the Navy's Arctic Expedition left Washington on Feb. 10, en route for Alaska, where they will establish a weather forecasting station and advance base in the vicinity of Nome. The party, under the command of Lieut. B. H. Wyatt, U.S.N., will sail from Seattle for Seward, Alaska, on the S.S. Alaskan Feb. 16. The party will use practically every form of transportation from the most primitive to the most advanced in arriving at their destination making use of steamship and rail, dog sled and airplane. They will carry with them complete equipment for the establishment of an aerological station in the arctic where weather conditions will be studied.

The personnel of the advance party is as follows: Lieut. B. H. Wyatt, in charge; Lieut. F. R. Hewes, Construction Corps; Inspector A. B. Jack, (Civilian); Aviation Chief Machinists Mate R. J. Castor; Quartermaster 1st class Francis, and Aviation Rigger 3d class A. K. Anderson.

Lieutenant Hewes and Mr. Jack will join the party in Seattle. In order to arrive at Nome during this season of the year it will be necessary for the party to land in Alaska at Seward on the southern coast and proceed to Fairbanks in the interior of Alaska by rail. From Fairbanks the party will travel to Nome by dog sled having engaged the services of Leonhard Seppala, Norwegian dog musher.

A Navy DeHaviland airplane fitted with skiis for landing on ice or snow will be carried by the expedition and will be flown by Lieutenant Wyatt from Fairbanks to Nome a distance of 700 mi. down the valley of the Yukon river. Wyatt will accompany the dog sled party on the first trip out from Fairbanks to ascertain landing facilities and to lay out supply stations of gasoline and food. He will then return to Fairbanks and fly his plane over the route that has been laid out, carrying with him two mechanics who will set up the plane in Fairbanks.

The flight down the Yukon to Nome will be under conditions more severe than have ever been encountered in flying, as regards temperature. At this time of the year temperatures of 40 deg. below zero are expected.

The airplane will be used at the Nome base for making weather observations of the upper air and to gain thorough acquaintance with the terrain in the vicinity of Nome. Preliminary work for the expedition will consist of selecting a site for the erection of a mooring mast in the Nome area and the laying of foundations for the mast.

Under the direction of Lieutenant Wyatt it is expected that valuable weather information will be obtained on which to base the operations of the Arctic expedition. Lieutenant Wyatt has a wide experience in aerological studies in connection with aviation. During the eclipse of the sun which occurred last September he ascended to a height of more than 17,000 ft. and obtained moving pictures of the eclipse which were a valuable contribution to the work of the scientists who observed the eclipse in Southern California. He will act as liaison officer for the Arctic expedition under orders from Admiral Moffett who has been named by the Secretary of the Navy as the chief of the expedition.

Navy Flier to Join Amundsen Shortly

Lieut. R. E. Davison, the Naval Aviator assigned to accompany Captain Amundsen in his proposed flight across the North Pole next summer, has reported to the Bureau of Aeronautics from Pensacola, for temporary duty prior to joining the Amundsen expedition. He expected to sail about the middle of February for Friedrichshafen, Germany, where the planes for this expedition are being constructed. Lieutenant Davison states that the expedition expects to leave Christiana, Norway, for Spitzbergen the first of May. They will push on to the edge of the polar ice pack about the middle of June.

Marine Fliers Welcomed in Haiti

The President of Haiti, the American High Commissioner and the Brigade Commander at Port au Prince, Haiti, welcomed the return of the two Marine Corps planes from their flight of 10,953 mi. on Dec. 8. The two planes, piloted by Lieuts. F. O. Rogers and H. D. Palmer, with two mechanics, completed on that date a flight from Haiti to San Francisco and return. When they left Haiti in September they were given a send-off by the President of Haiti and the American High Commissioner. This flight is the second longest flight in the history of aviation, and the longest American flight.

Naval Orders

The following have been transferred from Aircraft Squadrons, Asiatic Fleet to Vt. Squadron 20:

Lt. Comdr. George D. Murray, Lieut. William S. Hactor, Lieut. Lyman C. Avery, Lieut. John G. Farrell, Lieut. Earl B. Brix, Lieut. Marshall R. Green, Lieut. James D. Loury, Jr., Lieut. (jg) Frederick W. McMahon, Gunner LeRoy H. Ripley, Gunner Julian H. Detyens.

Lieut. James E. Dyer, det. Nav. Sta. Coco Solo, C. Z., to Aircraft Squadrons Battle Fleet.

Lieut. Harold A. Elliot, det. Office Nav. Inspr. Aircraft Central Dist. McCook Field, Dayton, to wait orders at Great Lakes, Ill.

Lieut. Edwin D. Foster, (SC) det. Nav. Air Sta. Hampton Roads, to temp. duty course instruction Princeton University.

Lieut. (jg) Wallace B. Hollingsworth, det. Aircraft Squads. Battle Fleet, to Nav. Air Sta. Coco Solo, C. Z.

Lieut. (jg) David W. Robinson, (SC) det. Nav. Air Sta. San Diego to Rec. Barracks, Hampton Roads.

Ens. John A. Pennington, det. Nav. Air Sta. Pearl Harbor, to Rec. Ship, San Francisco.

Gun. Julian H. Detyens, det. Battle Fleet, to VT Squadron 20.

Pay Clk. Edmund G. Oelkers, det. U.S.S. Texas, to Nav. Air Sta., Coco Solo, C. Z.

Members of the advance party of the Naval Arctic air expedition who left Washington for Nome on Feb. 9—(L. to R.) Q. M. Albert Francis, Av. Rigger A. K. Anderson, Lieut. B. H. Wyatt, in charge; and Chief Mach. Mate Robert Castor

The following officers have been ordered to the Nav. Air Sta., Pensacola, Fla., for temporary duty under instruction: Lieuts. (jg) Joseph F. Bolger, det. U.S.S. Wright, Bailey Connelly, det. U.S.S. Wright, Theodore G. Haff, det. U.S.S. Kane, and Richard F. Whitehead, det. U.S.S. Wright; Ens. Jasper T. Acuff, det U.S.S. Idaho, George A. Jones, John K. Lynch, det. U.S.S. Wright, Edward A. Maher, det. U.S.S. Wright, Edward P. Moore, det. U.S.S. Hopkins and Harlow M. Pino, det. U.S.S. Idaho.

Trials of New Scouting Planes

The new long distance scouting planes, manufactured by the Wright Aeronautical Corp. and the Curtiss Aeroplane and Motor Co., and developed in collaboration with the aircraft designers of the Bureau of Aeronautics, were recently flown at Mitchel Field. A trial board from the Bureau of Aeronautics, consisting of Lt. Comdr. C. P. Mason, Lt. Comdr. B. G. Leighton and Lieut. Rutledge Irvine, conducted the trials.

The Wright plane, known as the SDW1, is a modification of the DT4 with a Wright T3 engine, larger pontoons and a maximum gasoline capacity. The Curtiss plane, known as the CS2, is a modification of the CS1, with added gasoline capacity and a Wright T3 engine. Both of these types have been designed for long distance scouting, and three of each of them will be placed in commission in Scouting Squadron Three at Anacostia.

Funds Asked for Naval Air Fields

In a bill prepared at the request of the Navy Department by Representative Britten of Illinois, member of the Naval Committee, the following proposals are made for the benefit of Naval Aviation: The purchase of air stations at Galveston for $13,000 and at Lakehurst for $18,000, the purchase of marine flying field at Quantico for $20,000, and the establishment of a naval air station at Sand Point, Wash. The purchase for $600,000 of the town of Quantico for the purpose of incorporating it in the present Marine Corps camp at that point is also proposed.

New Aerographers' Ratings for Aviation

Announcement is made in a recent Bureau of Navigation circular letter of the establishment of aerographer ratings for men who have completed the meteorological school at Pensacola. With the transfer to these ratings of men trained in meteorology some of the difficulties heretofore encountered in maintaining an efficient aerological personnel will be solved. The diversity of ratings held by meteorological men heretofore has resulted in considerable confusion in promotions and in details of duty, as well as the loss of some men through transfer to general service.

An accurate meteorological observer and reliable forecaster is developed only after careful training and years of practice. In the future, men who hold aerological rating will be retained on duty with their specialty, and examinations for advancement will be principally in aerological subjects.

Fort Hamilton Reserve Ground Course

A complete correspondence text of the ground school course lectures is in preparation for students of the 1923 and 1924 classes at the Naval Reserve Air Station at Fort Hamilton, N. Y., residing outside of the district who are unable to attend the ground school lectures.

Students are required to transcribe the lectures and sketches into a standard note book, which will be submitted for inspection and marks, at the close of the ground school. This is the first time that an effort has been made to give instruction in aviation ground school work by the correspondence system, and the experiment is being watched with a great deal of interest.

Organization of Scouting Squadron

The organization of Scouting Plane Squadron Two (VS2) was started at the Naval Air Station at San Diego on Dec. 24. The personnel of this squadron are being taken from VT Squadron Two, VO Squadron One and VO Squadron Two. For the present the duty of this squadron will consist of the operation of two F5L's as mail planes and for emergency seaplane work, and the acceptance and operation of the new MO1 spotting planes. There are at present in commission in this squadron two F5L's and two MO1's.

Observation Squadron Six Formed

Observation Squadron Six, Aircraft Squadrons Scouting Fleet, was formally commissioned on Jan. 1 at Hampton Roads. This squadron will consist of six MO1 spotting planes. The preliminary work for the squadron will be carried out at the Naval Air Station, Hampton Roads, until the return of the Fleet from the winter cruise.

CALENDAR OF AERONAUTICAL EVENTS

March 7-8.	Curtiss Marine Flying Trophy Race and Flying Meet, Miami, Fla.
March 15.	Start of World Flight of the U. S. Army Air Service, Los Angeles.
March 31.	Closing date for papers submitted to Royal Aeronautical Society of Great Britain for the R38 Memorial Prize.
April 23.	National Balloon Race, San Antonio, Tex.
June 3-11.	International Aircraft Expositon, Prague, Czechoslovakia.
June 15.	Gordon Bennett International Balloon Race, Brussels, Belgium.
June 21.	Annual F.A.I. Conference, Paris, France.
June 22.	Commodore Beaumont International Cup Race for high speed airplanes, Istres, France.
July 5-6.	Zenith International Airplane Efficiency Race, Paris, France.
August.	"Tour de France des Avionnettes." International Round-France race for light airplanes.
Oct. 2-4.	International Air Races, incl. Pulitzer Trophy Race, Dayton, Ohio.
Dec. 17.	Twenty-first anniversary of the first successful airplane flight.

BACKFIRES

Deft sketch of the lamentable interference of air sickness with air power—as told by C. G. Grey in *The Aeroplane*:

"It is said that when Sir John Salmond was passing through Egypt on his way to India a grand *tamasha* of the Air Force was held to which all the notabilities of or in Egypt were invited. All went well till a big troop-carrier was sent up after publicly embarking twelve fully-equipped infantrymen with tin hats, rifles and a machine-gun, to demonstrate to the assembled company how air transport can be used to quell local disturbances.

"The machine started gaily and rose easily to some thousands of feet what time the impersario of the proceedings explained that on its descent the infantry would come smartly into action. In due course the machine made a perfect landing right in front of the enclosure, the door opened, and for some minutes a chilly silence reigned while nothing happened. Then there emerged, minus tunic and equipment, one solitary figure which crawled out of the door, leaned against the side of the machine and continued to be violently ill. The local disturbances had utterly conquered the other eleven."

Letter of a man whose enjoyment of nocturnal air travel was singularly tempered by the higher atmosphere—from Don Marquis' column, The Lantern, in *The New York Tribune*:

"Sir: The 'scorn that the rest of the flying service had for the safe and sane blimpers and their rubber cows,' referred to in The Lantern this morning, is not shared by a passenger in the C-2 on her all-night flight from Washington to New York and return before she blew up at Kelly Field.

"I have not been a member of either of the air services, but as a news writer have traveled some 30,000 miles by air, mostly by plane. Riding with the Air Mail from New York to San Francisco in mid-winter I got almost everything in the book, from forced landings in snow storms and desert sand storms to bouncing around over the Rockies in a ninety-mile blizzard in a 50-below temperature.

"All that sort of thing is rocking-chair and carpet slipper stuff compared with cross-country dirigible flying in dirty weather, particularly at night, and when carbon sparks from overheated Hissos are flying up against a 190-foot bag filled with hydrogen. I am here to testify that personal investigation convinced me that the clouds we flew through did not have silver linings; they had silver handles.

Apprehensively yours,
JOHN GOLDSTROM"

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Publisher's News Letter

There have been so many letters and suggestions regarding subjects that might be discussed on this page that it is difficult to select those that may have the widest interest. Perhaps the most general topic that seems to be of timely interest is the National Aeronautic Association.

We have had to say in this connection that we have so little knowledge of its activities except from hearsay that we are not in a position to answer the inquiries made. These, of course, refer to policy alone. What a difference between this year and last year. The noise of the tom-toms and the publicity typewriters that gave a certain color to the organization last year are still echoing if one listens. This year, on the contrary, the Association seems to shrink from publicity, except insofar as it can be used to foster its membership campaign.

* * * *

Many persons have remarked that they wished there was a writer in this country with the wit, versatility and all around inside information of C. C. Grey, the editor of our English contemporary, *The Aeroplane*. We share these sentiments. We, too, wish that some aeronautical writer would appear who could mold opinion by the incisive and critical method. Perhaps such an editor may appear some day. Some time ago an invitation was extended to Mr. Grey to pay this country a visit, but owing to press of business he was unable to leave his editorial work. If he does come, we hope he will not be in the position of the man who was given a pass to a theatre but after the first act went to the box office and purchased a ticket so that he might give vent to his feelings. Mr. Grey's views on American aviation and aeronautical personalities would be a great contribution to the aeronautical "teapot dome."

* * * *

(The following was written before the President's announcement ordering preparations stopped.)

Another question that is constantly coming up is "Do you really think the Shenandoah will make the Arctic trip?"

We are frank enough to say that we think the whole enterprise is not worth hazarding the lives of our naval pilots and mechanics, not to mention the ten million dollars that has been put into the development of the Shenandoah experiment. The spirit of the Navy has always been so unanimous in backing up any enterprise of a department head that it is difficult to get the true feelings of officers. In the case of the Shenandoah, however, the differences of opinion were so great and the whole trip so fraught with tragic possibilities, that even Naval officers just naturally overflowed with their genuine feelings of uncertainty. As a matter of fact, the whole plan gained such momentum before it was taken very seriously that for the sake of its prestige the Navy had to "carry on." It even appears that Secretary Denby was so convinced of the practicability and value of the trip that he added another element of urgency to the plans. We never doubted the sincerity of the officers who were assuring the public of the certainty of the voyage; but having had a certain advantageous viewpoint of the situation, it would not surprise us in the least if the full experiment were not carried out. And our opinion seems to be shared by most of the informed persons that we hear from. Usually they add, "When do you think will we hear of the Shenandoah being used as the eyes of the Fleet?"

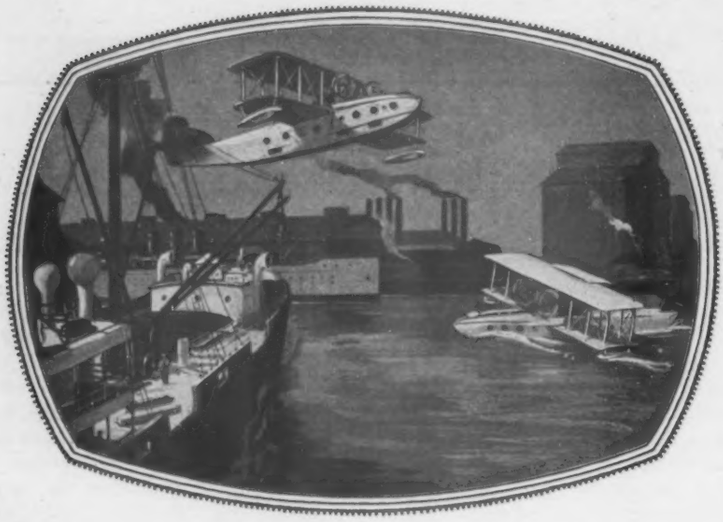
* * * *

One more word about our British visitors. We have just heard that more are on their way to this country. What can it be all about? We wish we knew. After such a long period of isolation we begin to feel that all this sudden migration must have a deeper significance than just a platonic interest in our aeronautical progress. It would be indelicate as well as premature to delve into this matter at the present moment. So we shall content ourselves with the enjoyment that we have had in swapping yarns with our British visitors.

* * * *

A visitor from the Middle West who is building airplanes for commercial service gave an optimistic view of the demand for a real air transport machine. Fifty such planes could have been sold last year in the Mississippi Valley and neighboring states in the opinion of this unusually well informed engineer. If the statement had been made in connection with stock selling or promotion, the optimism might be questioned. But this estimate was based on a careful analysis of enquiries.

It should be evident to everyone that when commercial aviation once starts in this country it will quickly take a great forward stride. So many people are waiting for "the day" to come that when it dawns the most optimistic views of present hopeful aeronautical people will be thought modest in their prognostications.



Speeding the Wheels of Commerce

IT IS to commerce that the most practical good will accrue to this country through the development of the aviation industry. When commercial air routes criss-cross the continent, increased prosperity will follow; just as prosperity always has followed the advent of faster and safe transportation.

As one of the means of development, aviation meets, such as was staged at St. Louis, have the same value to the aviation industry that automobile races have to the automobile industry. These races offer conclusive proof of the value of various improvements or discoveries; for, if a new kind of propeller, for instance, will stand the strain of pulling a ship at the tremendous speed of four miles a minute and more, it will certainly stand up under the strains incurred during ordinary commercial flying. Already there are a number of companies operating air routes in various parts of this country and the success which they have met would indicate that business men regard them as useful and safe means for shipping and traveling.

One of the pioneers in this business was the Aero Marine Company, which operates four ships on regular schedules between Cleveland, Ohio, and Detroit, Michigan. This Company is proving that safe, regular passenger and express service is possible and profitable by air, and the Standard Oil Company (Indiana) takes great pride in the fact that its aviation products are helping them to do it.

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have been used for the last year by the Aero-Marine Company in all of its ships on this route. These products were selected on the basis of merit, and, of course, have given the best of satisfaction. Not a bit of trouble traceable to the oil or gasoline has been encountered.

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The official guide of the United States Touring Information Bureau, which is now on sale at all Standard Oil Company (Indiana) service stations, contains a complete airway map compiled by the National Aeronautical Association of the U. S. A., together with a list of landing fields at which Stanolind Aviation Gasoline and Stanolind and Superla Aero Oils may be had. These points are also listed in our booklet, "Plane Facts," a copy of which will be sent to you free, on request.

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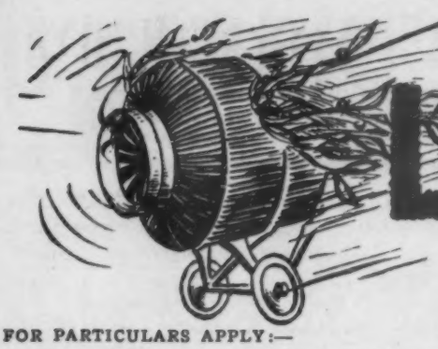

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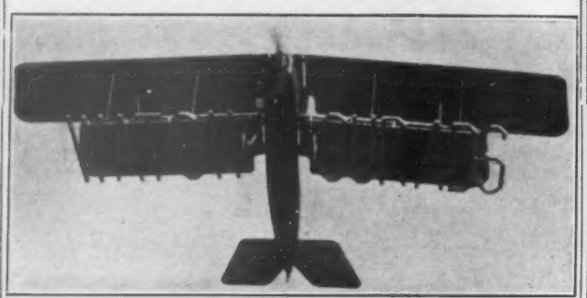

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